

Name: _____

A2&T-Review for Quarter 2 Exam 3

1) The roots of $24x^3 = 10x^2 + 4x$ are

A) $\frac{1}{4}, -\frac{2}{3}$

B) $-\frac{1}{4}, \frac{2}{3}$

C) $\frac{1}{4}, 0, -\frac{2}{3}$

D) $-\frac{1}{4}, 0, \frac{2}{3}$

Questions 2 through 4 refer to the following:

Solve the given polynomial equation by factoring and/or using the quadratic formula. [*Express all roots in simplest form.*]

2) $x^5 - 10x^3 + 21x = 0$

3) $24x^3 = 10x^2 + 4x$

4) $2x^3 = 3x - 5x^2$

5) What is the solution set for the following system of equations?

$$y = x^2 + 3$$

$$3x - y + 1 = 0$$

A) $\{(2,-7), (1,-4)\}$

C) $\{(2,7), (-1,4)\}$

B) $\{(2,7), (1,4)\}$

D) $\{(2,-7), (-1,-4)\}$

6) Determine the solution to the following system of equations:

$$y = x^2 - 6x + 6$$

$$y - x = -4$$

7) In a given rectangle, the length varies inversely as the width. If the length is doubled, the width will

A) be divided by 2

C) be multiplied by 2

B) remain the same

D) increase by 2

8) If x varies inversely as y , and $x = 12$ when $y = 3$, what is the value of x when $y = 9$?

A) 36

B) $\frac{1}{4}$

C) $\frac{1}{3}$

D) 4

9) If y varies directly as x , and $x = 4$ when $y = 9$, what is x when $y = 144$?

A) 64

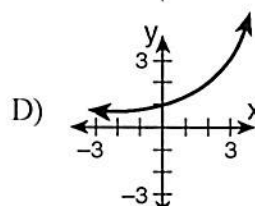
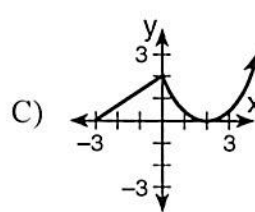
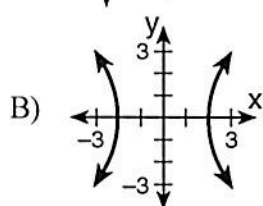
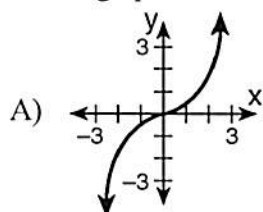
B) 36

C) 32

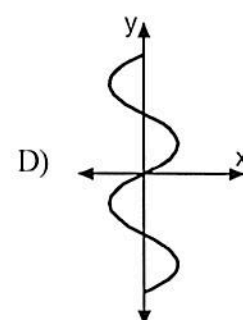
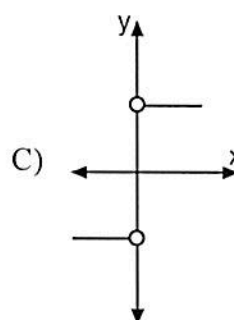
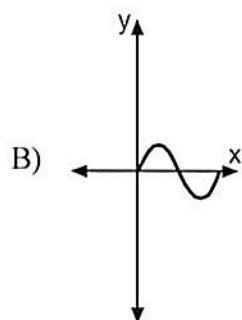
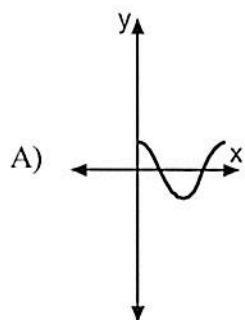
D) 324

- 10) The cost of pens varies directly as the number of dozens purchased. If 4 dozen cost \$10.60, how much will 7 dozen cost?
- A) \$18.45 B) \$18.75 C) \$18.55 D) \$18.65
- 11) Which set of ordered pairs does *not* represent a function?
- A) $\{(3,-2), (3,-4), (4,-1), (4,-3)\}$ C) $\{(3,-2), (4,-3), (5,-4), (6,-5)\}$
 B) $\{(3,-2), (5,-2), (4,-2), (-1,-2)\}$ D) $\{(3,-2), (-2,3), (4,-1), (-1,4)\}$

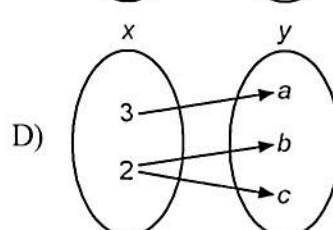
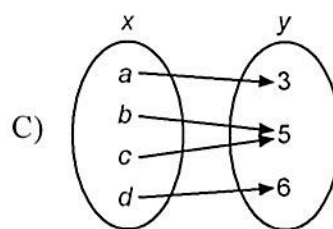
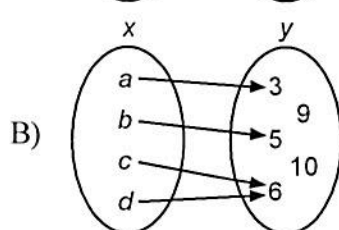
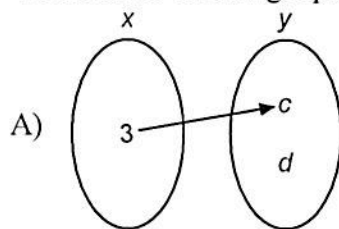
- 12) Which graph does *not* represent a function?



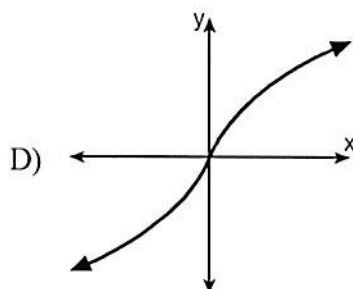
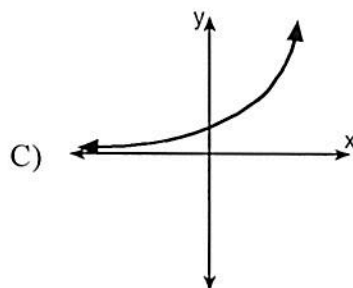
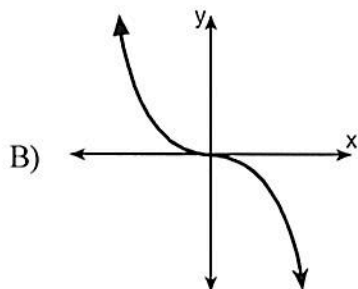
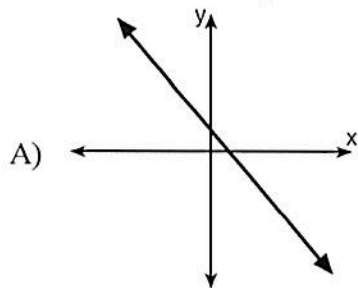
- 13) Which graph of a relation is *not* a function?



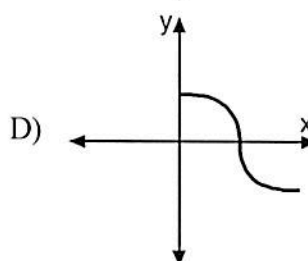
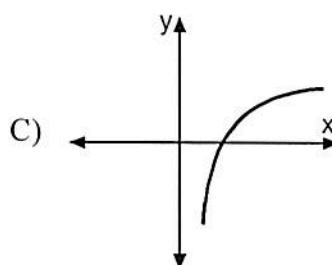
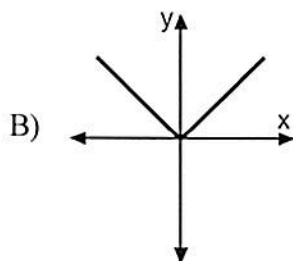
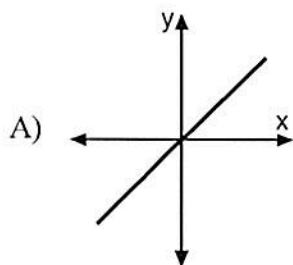
- 14) Which of the following represents an onto function?



15) Which of the following does *not* represent an onto function?



16) Which diagram does *not* represent a one-to-one function?



17) The function $f(x) = x^2 - 2x$ is

- A) onto but not one-to-one
B) both one-to-one and onto

- C) neither one-to-one nor onto
D) one-to-one but not onto

18) The function $f(x) = \sqrt{x - 4}$ is real for what values of x ?

- A) $\{x \mid x > 0\}$ B) $\{x \mid x < 0\}$ C) $\{x \mid x \leq 4\}$ D) $\{x \mid x \geq 4\}$

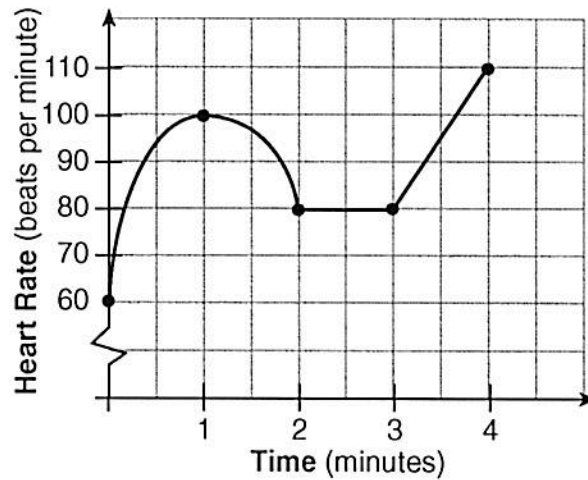
19) The domain of the real-valued function $f(x) = \frac{1}{\sqrt{x - 3}}$ contains which of the following numbers?

- A) -1 B) 2 C) 3 D) 7

20) If $f(x) = \frac{2x^2}{x^2 - 9}$, what is the domain of $f(x)$?

- A) all real numbers except 3 and -3 C) all real numbers
B) all real numbers except 3 D) all real numbers except 0

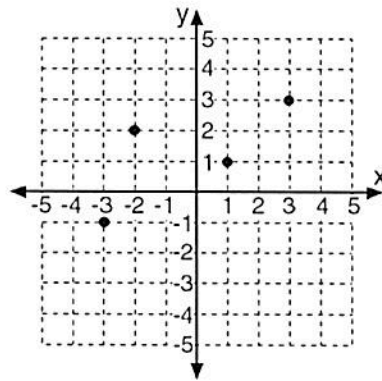
- 21) The accompanying graph shows the heart rate, in beats per minute, of a jogger during a 4-minute interval.



What is the range of the jogger's heart rate during this interval?

- A) 0-110 B) 60-110 C) 0-4 D) 1-4
- 22) For the graph of the relation below:

- (a) State the domain.
- (b) State the range.
- (c) State whether or not the relation is a function. [*Justify your answer.*]

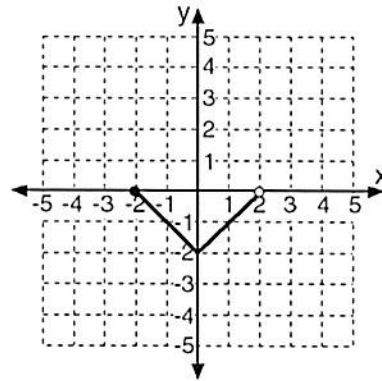


23) For the graph of the relation below:

(a) State the domain.

(b) State the range.

(c) State whether or not the relation is a function. [*Justify your answer.*]



24) If $f(x) = 4x - 6$, what is the value of $f\left(\frac{7x}{8}\right)$?

A) $6 - 2x$

B) $2x - 6$

C) $2x - 3$

D) $\frac{7}{2}x - 6$

25) If $f(x) = x^2 - 3$, then $f(a - b)$ is equal to

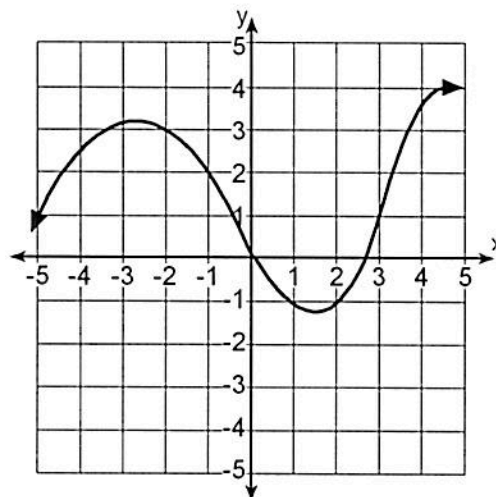
A) $a^2 - 2ab + b^2 - 3$

C) $a^2 - 2ab - b^2 - 3$

B) $a^2 + b^2 - 3$

D) $a^2 - b^2 - 3$

26) Given the graph below of $y = f(x)$.



According to the graph shown, what is the value of $f(3)$?

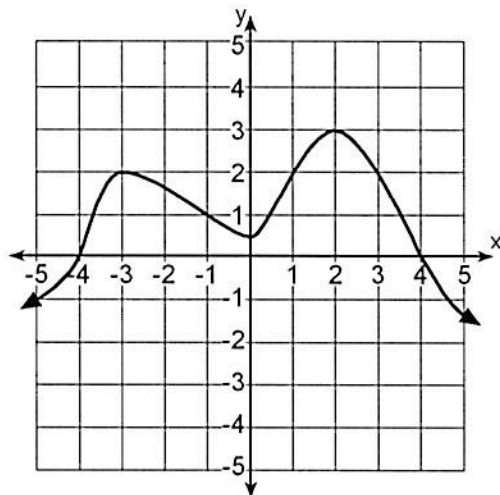
A) 1

B) 2

C) 3

D) -2

- 27) The diagram below represents the graph of $y = f(x)$.



- What is the value of $f(-1)$ in the graph shown?
- A) 1 B) 2 C) 3 D) -1
- 28) Given the function $f(x) = 3x^2 - 4$, which of the following is true?
- A) $f(0) = 0$ C) $f(5) \cdot f(2) = f(10)$
 B) $f(-2) = f(2)$ D) $f(5) + f(2) = f(7)$
- 29) If $f(x) = 3x - 1$ and $g(x) = 4x + 3$, what does $g(f(x))$ equal?
- A) $12x - 1$ C) $12x + 8$
 B) $12x^2 + 5x - 3$ D) $12x^2 + 13x - 3$
- 30) If $f(x) = 2x + 1$ and $g(x) = \frac{1}{2}(x - 1)$, what does $f(g(-4))$ equal?
- A) -4 B) 4 C) 1 D) $-\frac{1}{4}$
- 31) If $f(x) = \frac{2}{x+3}$ and $g(x) = \frac{1}{x}$, then $(g \circ f)(x)$ is equal to
- A) $\frac{2x}{1+3x}$ B) $\frac{x+3}{2x}$ C) $\frac{x+3}{2}$ D) $\frac{1+3x}{2x}$
- 32) If $f(x) = 5x^2$ and $g(x) = \sqrt{2x}$, what is the value of $(f \circ g)(8)$?
- A) 1,280 B) $8\sqrt{10}$ C) 16 D) 80
- 33) If $g(x) = x + 3$ and $f(x) = x^2 - 2$, find the value of $f(g(x - 3))$.
- 34) Given $f(x) = x - 2$ and $g(x) = 5x + 3$, find the value of the following:
- $(f \circ g)(x)$

- 35) Set $A = \{(1,2), (2,3), (3,4), (4,5)\}$. If the inverse of the set A is A^{-1} , which statement is true?
- A) A and A^{-1} are not functions. C) A is a function and A^{-1} is not a function.
 B) A and A^{-1} are functions. D) A is not a function and A^{-1} is a function.
- 36) If $(-3,1)$ is in the function $p(x)$, which of the following points will be in the function $p^{-1}(x)$?
- A) $(-1,3)$ B) $(3,1)$ C) $(3,-1)$ D) $(1,-3)$
- 37) What is the inverse of the equation $y = 3x - 2$?
- A) $y = 2x - 3$ B) $y = x$ C) $y = \frac{x+2}{3}$ D) $y = 3x + 2$
- 38) The inverse function of $\{(2,6), (-3,4), (7,-5)\}$ is
- A) $\{(2,-6), (-3,-4), (7,5)\}$ C) $\{(-2,6), (3,4), (-7,-5)\}$
 B) $\{(-6,-2), (-4,3), (5,7)\}$ D) $\{(6,2), (4,-3), (-5,7)\}$
- 39) Which of the following graphs is the inverse of $f(x) = \{(0,1), (1,4), (2,3)\}$?

